

作成承認印

配布許可印



# AF Zoom-Nikkor 24-120/3.5-5.6D



## PARTS LIST

修理部品表

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Tokyo, Japan

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展開図 Exploded Drawings

AF 24-120/3.5-5.6D

JAA75751-R.3393.A

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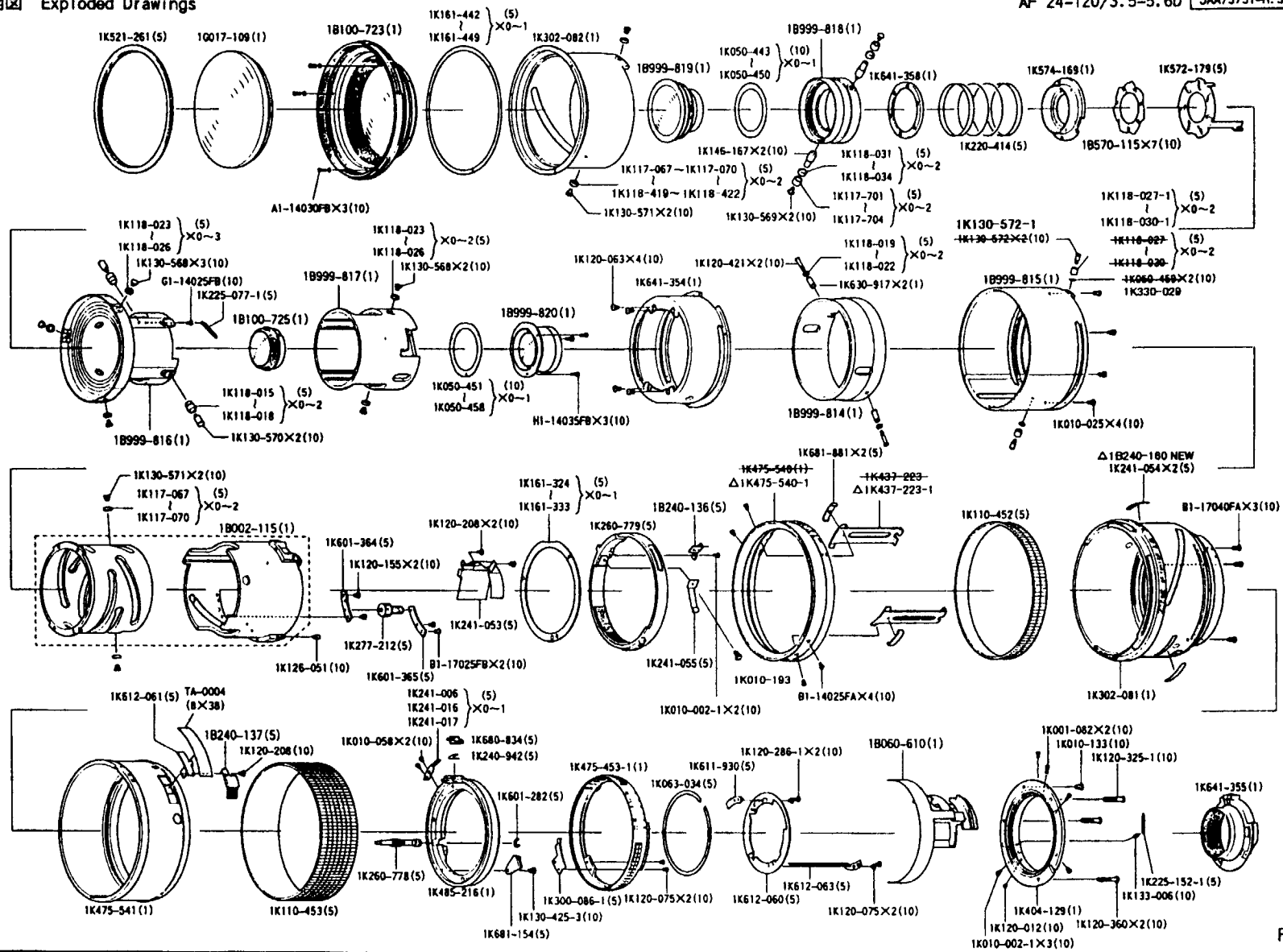


Fig.1

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部品表 Parts List

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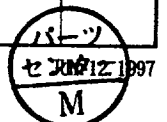
部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
* 1K001-082	113	SCREW SCREW	2		D4	○		10
* 1K010-002-1	102	SCREW SCREW	5		C3 D4	○		10
* 1K010-025	112	SCREW SCREW	4		D2	○		10
* 1K010-058	95	SCREW SCREW	2		B4	○		10
* 1K010-133	106	SCREW SCREW	1		D4	○		10
1K050-443	57	ワッシャー (T=0.05) WASHER (T=0.05)	0-1		C1	○		10
1K050-444	57	ワッシャー (T=0.06) WASHER (T=0.06)	0-1		C1	○		10
1K050-445	57	ワッシャー (T=0.07) WASHER (T=0.07)	0-1		C1	○		10
1K050-446	57	ワッシャー (T=0.08) WASHER (T=0.08)	0-1		C1	○		10
1K050-447	57	ワッシャー (T=0.09) WASHER (T=0.09)	0-1		C1	○		10
1K050-448	57	ワッシャー (T=0.10) WASHER (T=0.10)	0-1		C1	○		10
1K050-449		ワッシャー (T=0.20) WASHER (T=0.20)	0-1		C1	○		10
1K050-450		ワッシャー (T=0.30) WASHER (T=0.30)	0-1		C1	○		10
1K050-451	58	ワッシャー (T=0.05) WASHER (T=0.05)	0-1		B2	○		10
1K050-452		ワッシャー (T=0.06) WASHER (T=0.06)	0-1		B2	○		10
1K050-453		ワッシャー (T=0.07) WASHER (T=0.07)	0-1		B2	○		10

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
1K050-454	58	ワッシャー (T=0.08) WASHER (T=0.08)	0-1		B2	○		10
1K050-455		ワッシャー (T=0.09) WASHER (T=0.09)	0-1		B2	○		10
1K050-456		ワッシャー (T=0.10) WASHER (T=0.10)	0-1		B2	○		10
1K050-457		ワッシャー (T=0.20) WASHER (T=0.20)	0-1		B2	○		10
1K050-458		ワッシャー (T=0.30) WASHER (T=0.30)	0-1		B2	○		10
△ 1K050-459	85	ワッシャー (T=0.30) WASHER (T=0.30)	2		D2	○	RP-9722	10
* 1K050-460	138	ワッシャー WASHER	3		B1	○		10
1K063-034	101	押え板 RETAINER PLATE	1		C4	○		5
1K110-314	99	両面テープ(8x38) DUBLESIDED ADHESIVE TAPE(8x38)	1		A4	×	TA-0004	1 ROLL
1K110-452	37	ゴムリング RUBBER RING	1		D3	○		5
1K110-453	63	ゴムリング RUBBER RING	1		A4	○		5
1K116-368	143	両面テープ(8x8) DUBLESIDED ADHESIVE TAPE(8x8)	1			×	TA-0004	1 ROLL
1K116-824	139	両面テープ(8x47) DUBLESIDED ADHESIVE TAPE(8x47)	1			×	TA-0004	1 ROLL
* 1K117-067	116	ローラー (D=4.48) ROLLER (D=4.48)	0-4		B1	○		5
* 1K117-068		ローラー (D=4.50) ROLLER (D=4.50)	0-4		B1	○		5
* 1K117-069		ローラー (D=4.49) ROLLER (D=4.49)	0-4		B1	○		5

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1 台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
* 1K117-070	116	ローラー (D=4.51) ROLLER (D=4.51)	0-4		A3	○		5
1K117-173	141	両面テープ(15x15) DUBLESIDED ADHESIVE TAPE(15x15)	1			×	TA-0010	1 ROLL
1K117-701	133	ローラー (D=4.50) ROLLER (D=4.50)	0-2		C1 A3	○		5
1K117-702		ローラー (D=4.49) ROLLER (D=4.49)	0-2		C1 A3	○		5
1K117-703		ローラー (D=4.48) ROLLER (D=4.48)	0-2		C1 A3	○		5
1K117-704		ローラー (D=4.51) ROLLER (D=4.51)	0-2		C1 A3	○		5
1K117-824	142	両面テープ(8x20) DUBLESIDED ADHESIVE TAPE(8x20)	1			×	TA-0010	1 ROLL
1K117-825	140	両面テープ(8x34) DUBLESIDED ADHESIVE TAPE(8x34)	1			×	TA-0010	1 ROLL
1K118-015	79	ローラー (D=4.50) ROLLER (D=4.50)	0-2		A2	○		5
1K118-016		ローラー (D=4.49) ROLLER (D=4.49)	0-2		A2	○		5
1K118-017		ローラー (D=4.48) ROLLER (D=4.48)	0-2		A2	○		5
1K118-018		ローラー (D=4.51) ROLLER (D=4.51)	0-2		A2	○		5
1K118-019	89	ローラー (D=3.50) ROLLER (D=3.50)	0-2		C2	○		5
1K118-020		ローラー (D=3.48) ROLLER (D=3.48)	0-2		C2	○		5
1K118-021		ローラー (D=3.49) ROLLER (D=3.49)	0-2		C2	○		5
1K118-022		ローラー (D=3.51) ROLLER (D=3.51)	0-2		C2	○		5

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
1K118-023	90	ローラー (D=4.50) ROLLER (D=4.50)	0-5		A2 B2	○		5
1K118-024		ローラー (D=4.48) ROLLER (D=4.48)	0-5		A2 B2	○		5
1K118-025		ローラー (D=4.49) ROLLER (D=4.49)	0-5		A2 B2	○		5
1K118-026		ローラー (D=4.51) ROLLER (D=4.51)	0-5		A2 B2	○		5
△ 1K118-027	131	ローラー (D=3.50) ROLLER (D=3.50)	0-2		D2	○	RP-9722	5
△ 1K118-028		ローラー (D=3.48) ROLLER (D=3.48)	0-2		D2	○	RP-9722	5
△ 1K118-029		ローラー (D=3.49) ROLLER (D=3.49)	0-2		D2	○	RP-9722	5
△ 1K118-030		ローラー (D=3.51) ROLLER (D=3.51)	0-2		D2	○	RP-9722	5
1K118-031	135	ローラー (D=4.50) ROLLER (D=4.50)	0-2		C1	○		5
1K118-032		ローラー (D=4.49) ROLLER (D=4.49)	0-2		C1	○		5
1K118-033		ローラー (D=4.48) ROLLER (D=4.48)	0-2		C1	○		5
1K118-034		ローラー (D=4.51) ROLLER (D=4.51)	0-2		C1	○		5
* 1K120-012	108	SCREW SCREW	1		D4	○		10
* 1K120-063	93	SCREW SCREW	4		B2	○		10
* 1K120-075	100	SCREW SCREW	4		C4	○		10
* 1K120-155	122	SCREW SCREW	2		B3	○		10

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
* 1K120-208	127	SCREW SCREW	3		B3 A4	○		10
* 1K120-286-1 (1K120-286)	92	SCREW SCREW	2		C4	○		10
* 1K120-325-1 (1K120-325)	105	SCREW SCREW	1		D4	○		10
* 1K120-360	104	SCREW SCREW	2		D4	○		10
1K120-421	103	SCREW SCREW	2		C2	○		10
* 1K126-051	96	SCREW SCREW	1		B3	○		10
* 1K130-425-3 (1K130-425-1)	123	SCREW SCREW	1		B4	○		10
1K130-568	81	SCREW SCREW	5		A2 B2	○		10
1K130-569	91	SCREW SCREW	4		C1	○		10
1K130-570	98	SCREW SCREW	2		A2	○		10
1K130-571	118	SCREW SCREW	4		B1 A3	○		10
△ 1K130-572 1K130-572-1	119	SCREW SCREW	2		D2	○	RP-9722	10
* 1K133-006	87	SCREW SCREW	1		D4	○		10
1K146-167	80	SCREW SCREW	2		C1	○		10
* 1K161-324	125	ワッシャー (T=0.80) WASHER (T=0.80)	0-1		B3	○		5
* 1K161-325		ワッシャー (T=0.05) WASHER (T=0.05)	0-1		B3	○		5

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1 台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
* 1K161-326	125	ワッシャー (T=0.06) WASHER (T=0.06)	0-1		B3	○		5
* 1K161-327		ワッシャー (T=0.07) WASHER (T=0.07)	0-1		B3	○		5
* 1K161-328		ワッシャー (T=0.08) WASHER (T=0.08)	0-1		B3	○		5
* 1K161-329		ワッシャー (T=0.09) WASHER (T=0.09)	0-1		B3	○		5
* 1K161-330		ワッシャー (T=0.10) WASHER (T=0.10)	0-1		B3	○		5
* 1K161-331		ワッシャー (T=0.20) WASHER (T=0.20)	0-1		B3	○		5
* 1K161-332		ワッシャー (T=0.30) WASHER (T=0.30)	0-1		B3	○		5
* 1K161-333		ワッシャー (T=0.50) WASHER (T=0.50)	0-1		B3	○		5
1K161-442	86	ワッシャー (T=0.05) WASHER (T=0.05)	0-1		B1	○		5
1K161-443		ワッシャー (T=0.06) WASHER (T=0.06)	0-1		B1	○		5
1K161-444		ワッシャー (T=0.07) WASHER (T=0.07)	0-1		B1	○		5
1K161-445		ワッシャー (T=0.08) WASHER (T=0.08)	0-1		B1	○		5
1K161-446		ワッシャー (T=0.09) WASHER (T=0.09)	0-1		B1	○		5
1K161-447		ワッシャー (T=0.10) WASHER (T=0.10)	0-1		B1	○		5
1K161-448		ワッシャー (T=0.20) WASHER (T=0.20)	0-1		B1	○		5
1K161-449		ワッシャー (T=0.30) WASHER (T=0.30)	0-1		B1	○		5

部品表 Parts List

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
△ *1K220-414	62	圧縮バネ COMPRESSION SPRING	1		C1	○	RP-9722	5
* 1K225-077-1	130	引張バネ PULL SPRING	1		A2	○		5
* 1K225-152-1 (1K225-152)	84	引張バネ PULL SPRING	1		D4	○		5
* 1K240-942	36	板バネ PLATE SPRING	1		B4	○		5
* 1K241-006		板バネ (T=0.15) SPRING (T=0.15)	0-1		B4	○		5
* 1K241-016		板バネ (T=0.18) SPRING (T=0.18)	0-1		B4	○		5
* 1K241-017		板バネ (T=0.20) SPRING (T=0.20)	0-1		B4	○		5
1K241-053	115	F P C貼付曲り板 FPC STICK VENT PLATE	1		B3	○		5
* 1K241-054	128	板バネ PLATE SPRING	2		D3	○		5
△ * 1K241-055	134	板バネ PLATE SPRING	1		C3	○	RP-9722	5
1K260-778	71	連動ギア COUPLING GEAR	1		B4	○		5
1K260-779	114	セグメントギア環 SEGMENT GEAR RING	1		B3	○		5
1K277-212	72	アイドルギア IDOL GEAR	1		B3	○		5
* 1K300-086-1 (1K300-086)	21	平面カム FLAT CAM	1		B4	○		5
1K302-081	27	指標環 INDEX RING	1		D3	○		1
1K302-082	51	インナーカム溝環 INNER CAM GROOVE RING	1		B1	○		1
△ 1K330-029		ワッシャー T=0.3 WASHER T=0.3	1			○	RP-9722	10

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部品表 Parts List

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1 台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
1K404-129	30	バヨネットマウント BAYONET MOUNT	1		D4	○		1
△ 1K437-223	22	キー KEY	2		C3	○	RP-9726	5
* 1K475-453-1 (1K475-453)	28	絞り環 APERTURE RING	1		B4	○		1
△ 1K475-540	26	距離環 FOCUSING RING	1		C3	○	RP-9726	1
1K475-541	59	ズーム目盛環 ZOOM SCALE RING	1		A4	○		1
* 1K485-216	29	丸環 RING	1		B4	○		1
1K521-261	43	押え環 RETAINER RING	1		A1	○		5
1K572-179	33	矢車 APERTURE ACTUATING PLATE	1		D1	○		5
1K574-169	34	蜂の巣 BLADE MOUNTING RING	1		D1	○		1
* 1K601-282	126	平板 PLATE	1		B4	○		5
1K601-364	73	ギヤ地板 GEAR PLATE	1		B3	○		5
1K601-365	74	ギヤ地板 GEAR PLATE	1		B3	○		5
* 1K611-930	23	曲げレバー BENT LEVER	1		C4	○		5
1K612-060	60	バネ掛け曲げ板 BENT PLATE	1		C4	○		5
1K612-061	70	ブラシ取付曲げ板 BENT PLATE	1		A4	○		5
1K612-063	94	曲げレバー BENT LEVER	1		C4	○		5

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部品表 Parts List

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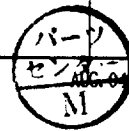
部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	部組品番号 Assembly No.	参照 図番 Fig. No.	販売区分 Term of Delivery	備 考 Remarks	要求単位 Q'ty per order
1K630-917	64	段付丸環 SHOULDER RING	2		C2	○		1
1K641-354	24	丸環 RING	1		C2	○		1
1K641-355	39	後部保護環 REAR COVER RING	1		D4	○		1
1K641-358	69	丸環 RING	1		C1	○		1
* 1K680-834	75	EEロックレバー EE LOCK LEVER	1		B4	○		5
* 1K681-154	61	平レバー FLAT LEVER	1		B4	○		5
1K681-881	111	制限ゴム RESTRICTION RUBBER	2		C3	○		5
A1-14030FB	136	SCREW SCREW	3		B1	○		10
B1-14025FA	78	SCREW SCREW	4		C3	○		10
B1-17025FB	124	SCREW SCREW	2		B3	○		10
B1-17040FA	121	SCREW SCREW	3		D3	○		10
G1-14025FB	132	SCREW SCREW	1		A2	○		10
G1-14030FB	97	SCREW SCREW	2			○		10
H1-14035FB	137	SCREW SCREW	3		B2	○		10

## 部組品表 Assembly List

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部品番号 Part No.	補助番号 Ckt No.	名 称 Name	1台分 個 数 Pcs. Per Unit	大部組品番号 Main assembly No.	参照 図番 Fig. No.	備 考 Remarks	要求単位 Q'ty per order
1G017-109	G1.2	G1-G2レンズ G1-G2 LENS ELEMENT	1		A1		1
1B002-115	B8	カム溝環部組 CAM GROOVE RING UNIT	1		A3		1
1B060-610	B9	FPC部組 FPC UNIT	1		C4		1
1B100-723	B1	G3レンズ室部組 G3 LENS HOUSING UNIT	1		B1		1
1B100-725	B3	3群レンズ室部組 3RD GROUP LENS HOUSING UNIT	1		A2		1
1B240-136	B5	ブラシ部組 BRUSH UNIT	1		C3		5
1B240-137	B6	ブラシ部組 BRUSH UNIT	1		A4		5
△ 1B240-160		板バネ PLATE SPRING	1			RP-9726	5
1B570-115	B7	絞り羽根部組 APERTURE BLADE UNIT	7		D1		10
1B999-814	B18	丸環部組 RING UNIT	1		C4		1
1B999-815	B19	直進溝環部組 LINER GROOVE RING UNIT	1		C2		1
1B999-816	B21	直進溝環部組 LINER GROOVE RING UNIT	1		A2		1
1B999-817	B24	直進溝環部組 LINER GROOVE RING UNIT	1		B2		1
1B999-818	B32	丸環部組 RING UNIT	1		C1		1
1B999-819	B49	2群レンズ室部組 2ND GROUP LENS HOUSING UNIT	1		C1		1
1B999-820	B50	4群レンズ室部組 4TH GROUP LENS HOUSING UNIT	1		B2		1

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## REPAIR MANUAL

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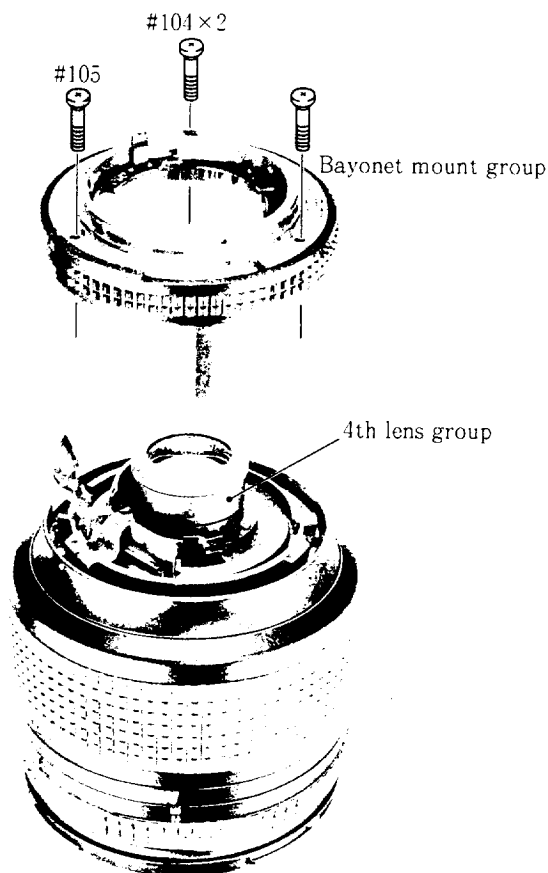
無断転載を禁ず!!

# DISASSEMBLING / ASSEMBLING / ADJUSTMENT

## NOTES ON DISASSEMBLING

When you remove the 4th lens group and reassemble it as it was, an asymmetric shape appears in the projected image, requiring optical axis adjustment.

This instruction includes procedures for working without the 4th lens group. In normal repair operations, do not remove the 4th lens group other than for replacement.



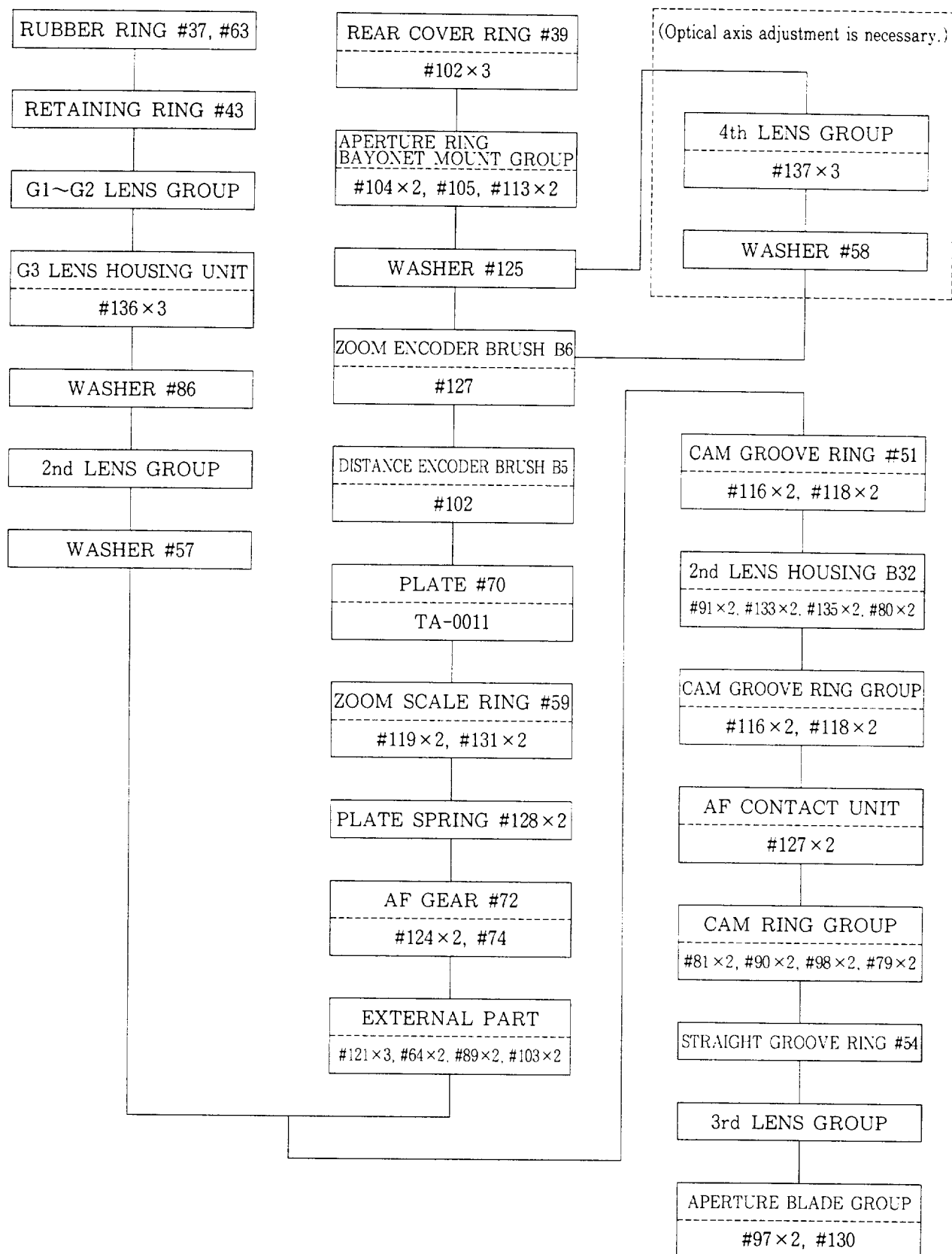
Optical axis adjustment equipment will be available at Nikon Corporation, Tokyo, Nikon Inc. , Nikon Europe B.V. and Nikon Singapore.

The equipment has not been completed yet due to production delays. For the time being, send products which require optical axis adjustment to Nikon, Tokyo.

※Optical axis adjustment equipment will be sent as soon as possible.

Materials for the optical axis adjustment equipment will be available and distributed to the above four locations.

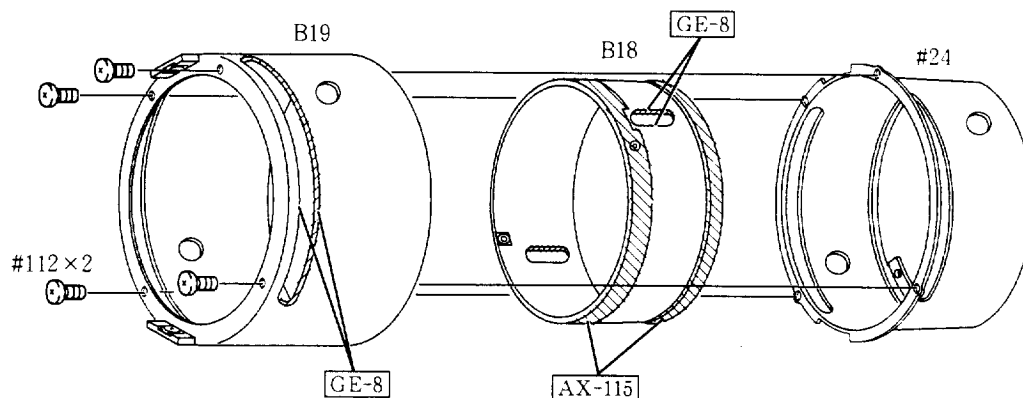
## 1. DISASSEMBLING PROCEDURE



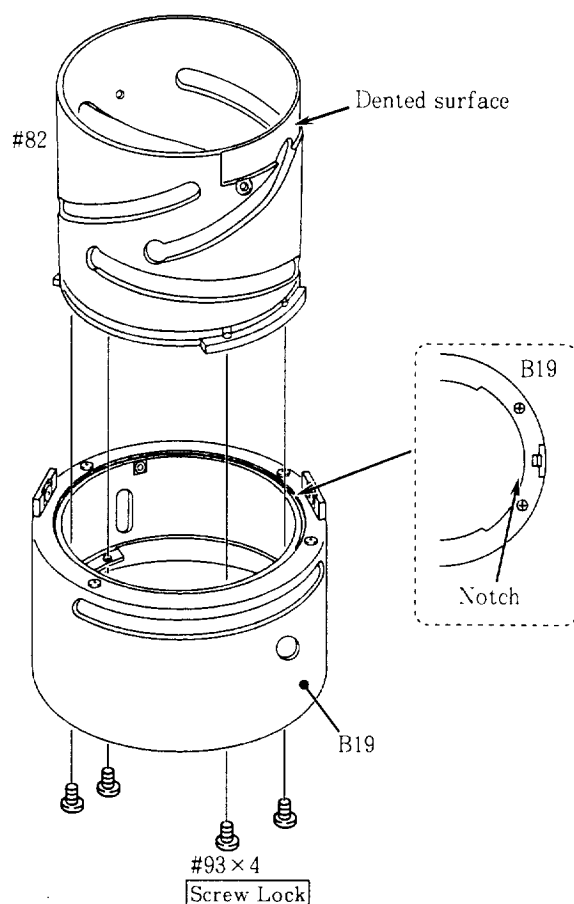


## 2. ASSEMBLING / ADJUSTMENT

### STRAIGHT GROOVE RING GROUP



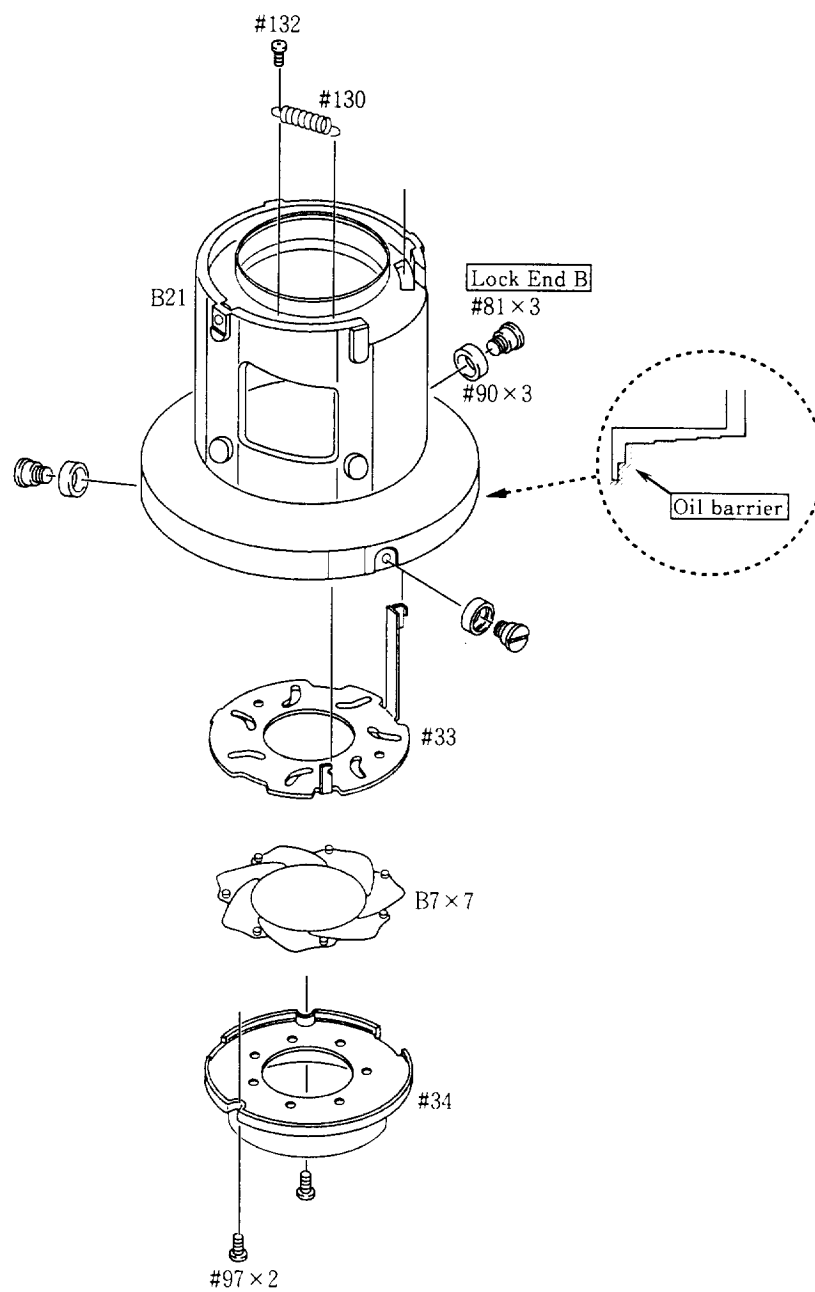
### CAM RING #82



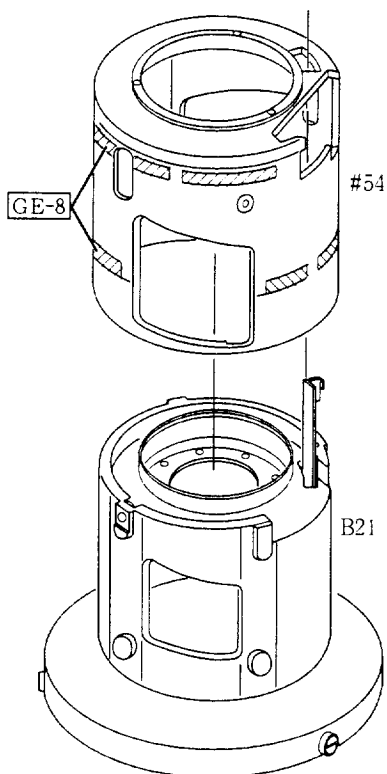
- Apply GE-8 oil to 6 locations in the cam groove on cam ring #82.

**Note:** As shown in the figure on the left, mount the cam ring at the location where the dented surface of #82 aligns with notch on the B19.

## APERTURE BLADE HOUSING GROUP



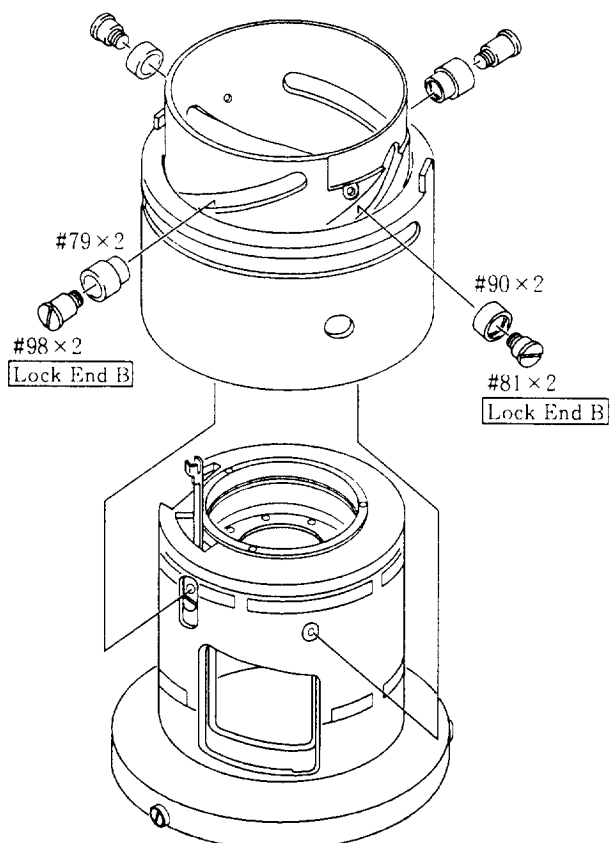
## STRAIGHT GROOVE RING #54



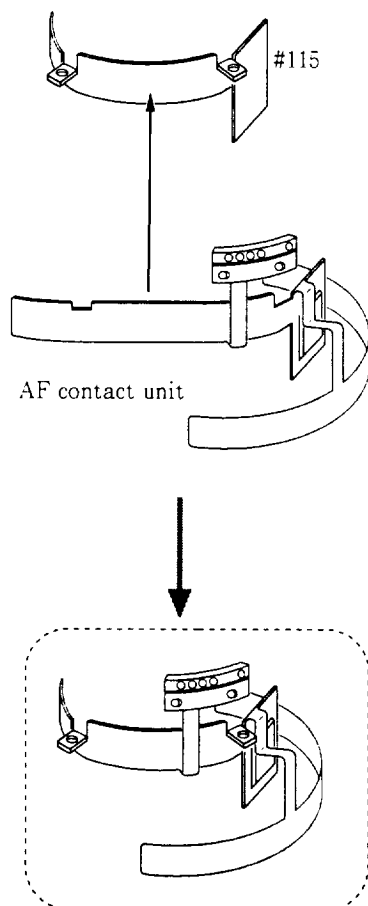
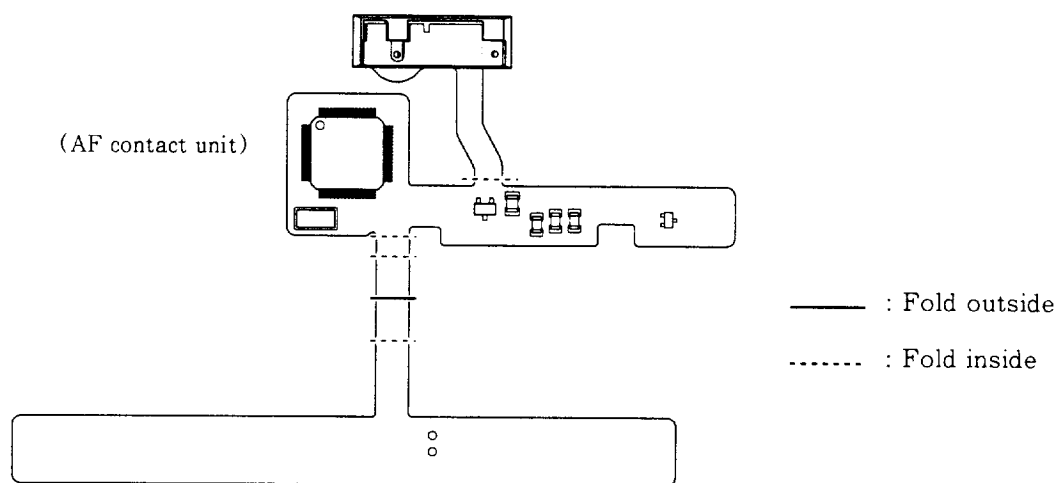
- Apply AX-115 oil to four locations in the linear advancing groove inside #54.

**Note:** When disassembling or assembling the lens without removing the 4th lens group unit, make sure to attach the 3rd lens group unit to B21.

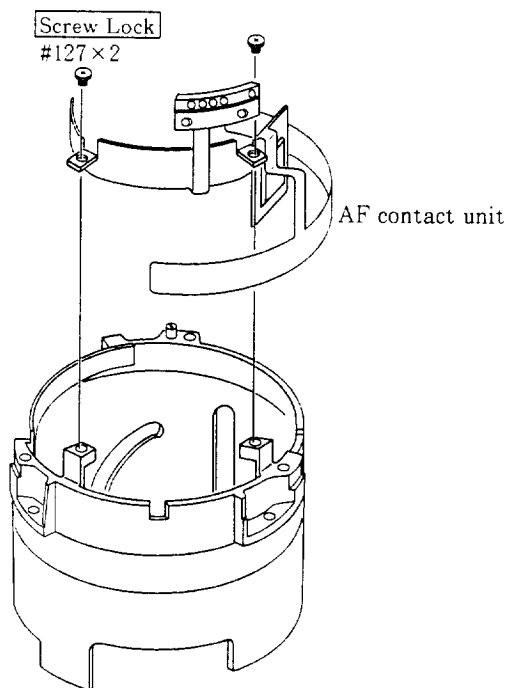
## ASSEMBLING CAM RING GROUP



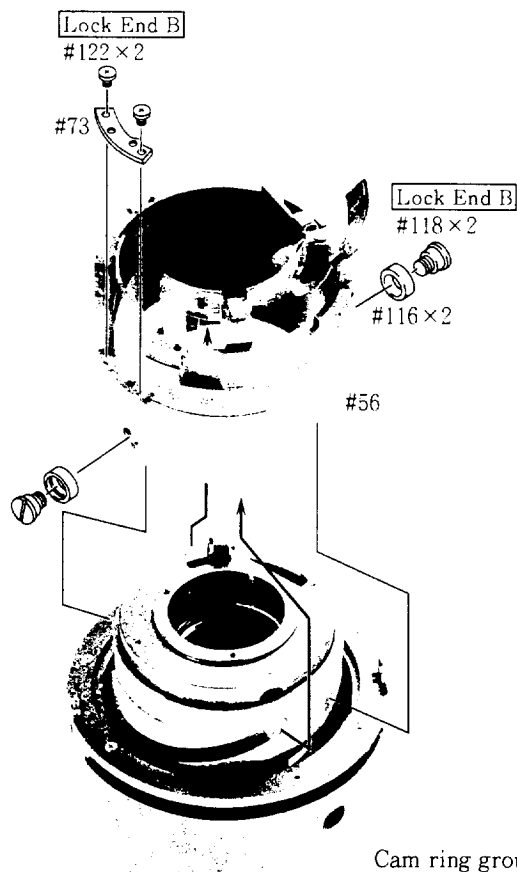
AF CONTACT UNIT



## ATTACHING AF CONTACTS UNIT

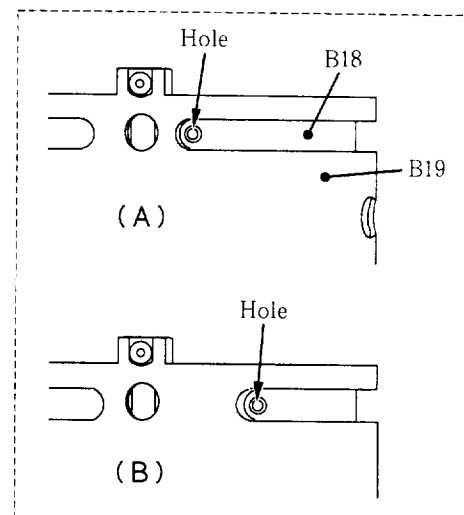
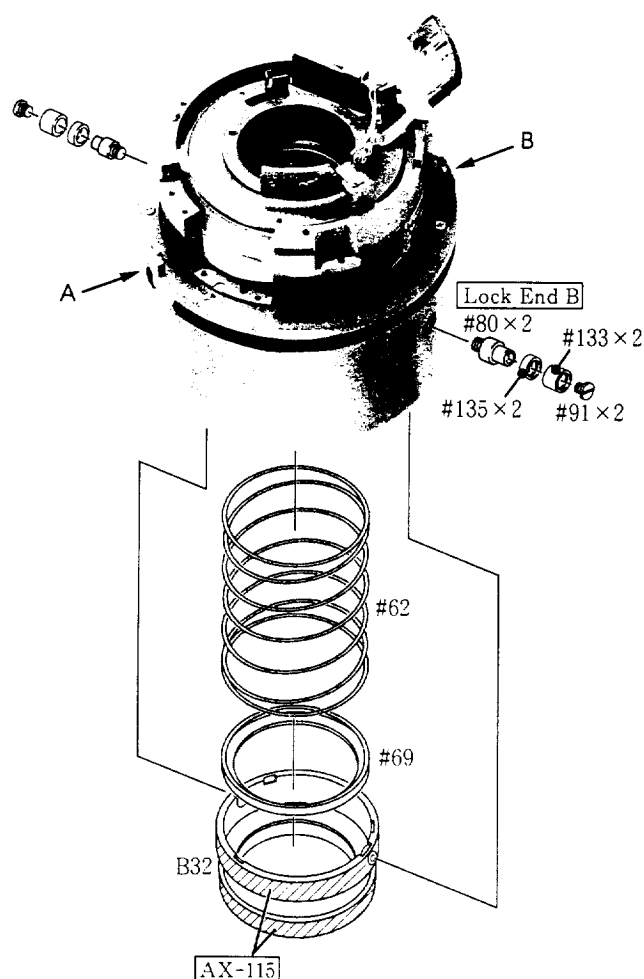


## CAM GROOVE RING GROUP



- Apply GE-8 oil slightly to the linear advancing groove inside #56.
- Insert the guide ring of the cam ring into the linear advance groove inside #56.

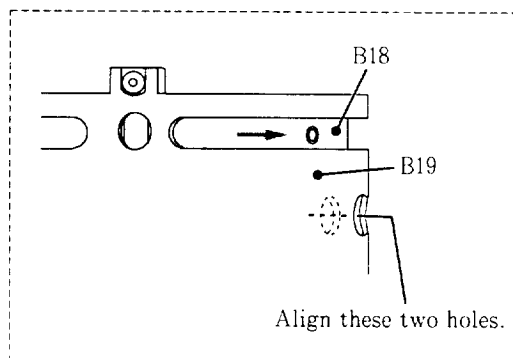
## 2nd LENS HOUSING



**\*Mounting procedure for the 2nd lens group chamber unit**

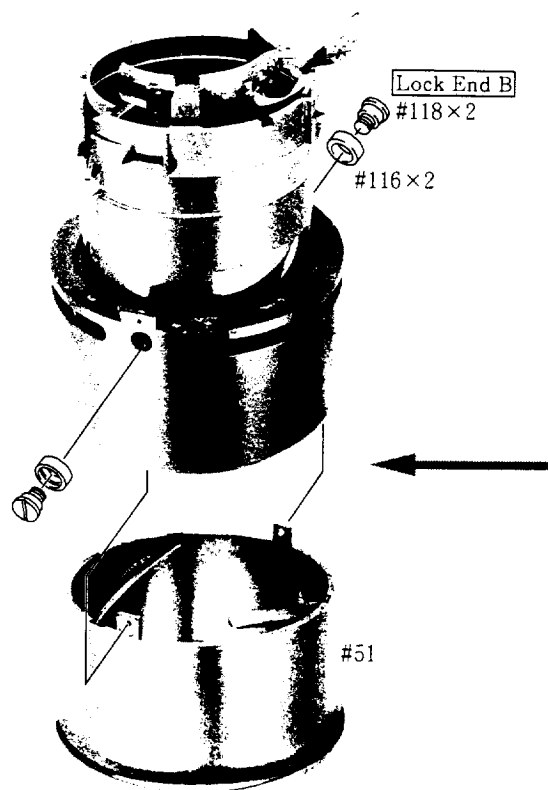
- ① Rotate B18 until both screw holes are aligned at positions A and B respectively as shown in the figure above.

**Note:** If only one of the two screw holes comes to the proper location, rotate B18 by half a turn in the reverse direction.

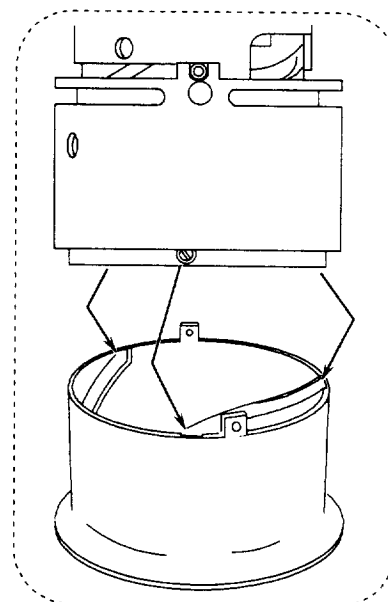


- ② Making sure that both screw holes are properly aligned, rotate B18 in the direction of the arrow as shown in the figure on the left. Next mount the 2nd lens group chamber B32 while aligning holes on B18 and B19.

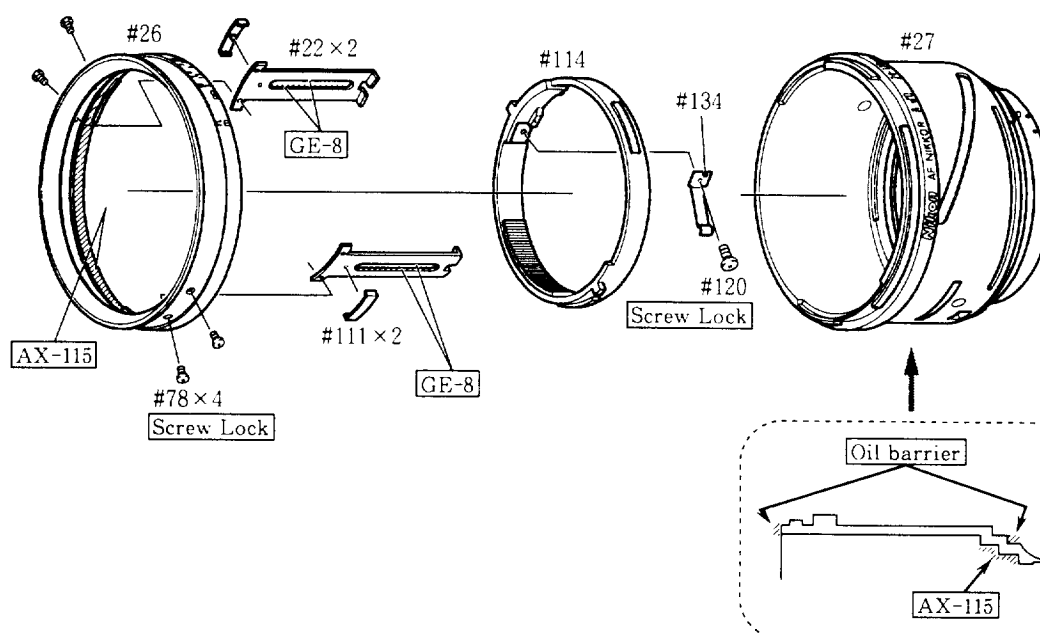
## CAM GROOVE RING #51



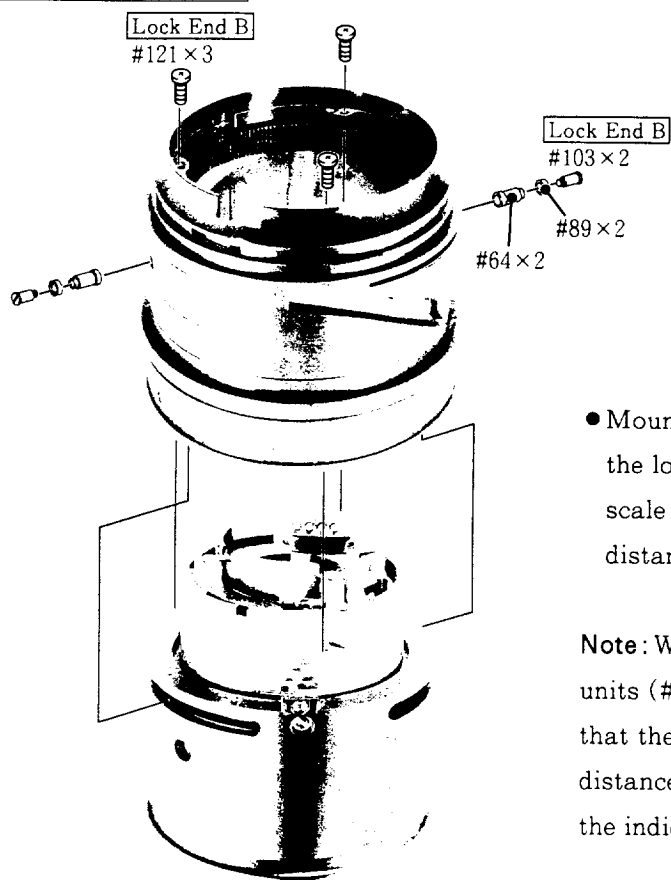
- Apply GE-8 oil to three locations in the cam groove inside #51.
- As shown in the figure below, set the lens at the Tele side for easier mounting.



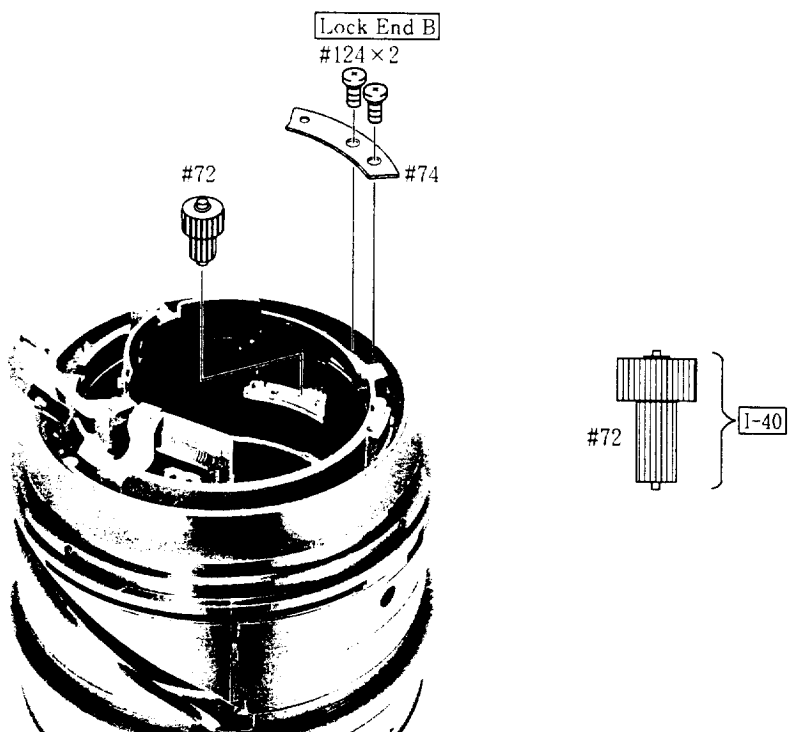
## INDEX RING #27, DISTANCE SCALE RING #26



## ASSEMBLING EXTERNAL PART

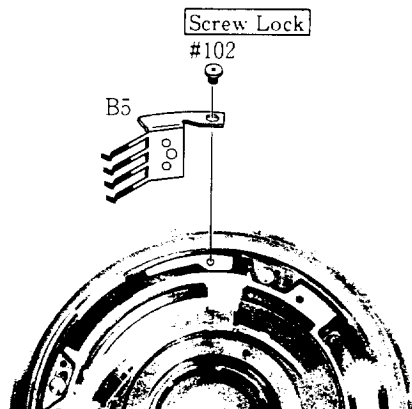


## AF GEAR

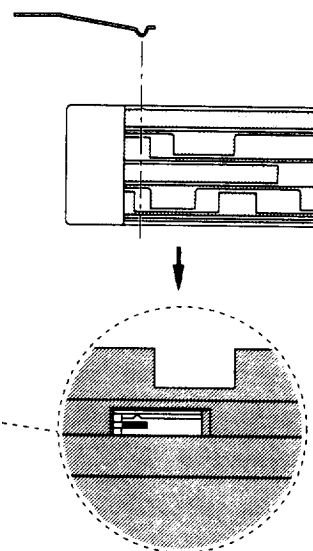
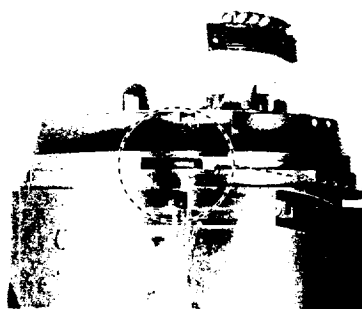




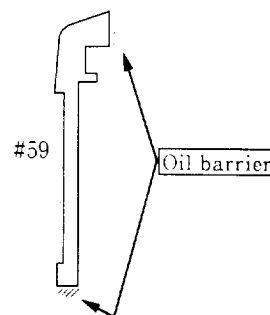
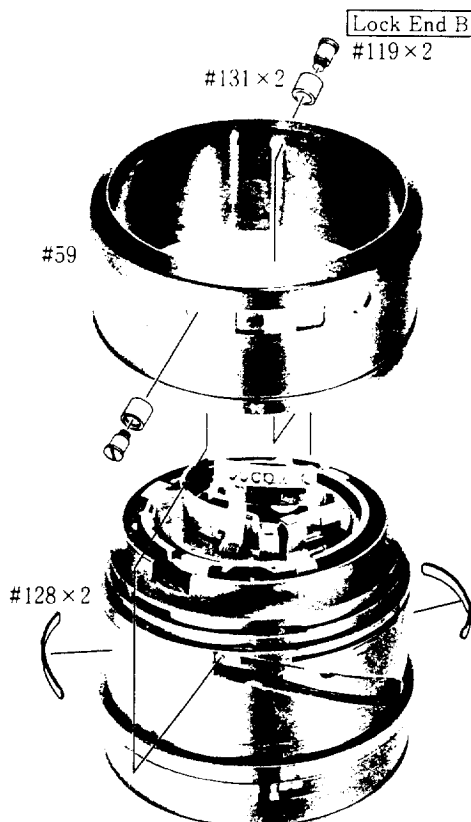
# ADJUSTMENT OF DISTANCE ENCODER BRUSH POSITION



- ① Attach focus ring to the infinity stopper.
- ② Unfasten screw #102 and let the brush tip come into contact with the line as shown in the figure.
- ③ Fasten screw #102 and turn the focus ring several times to check the location of the brush.
- ④ Secure screw #102 using Screw Lock.

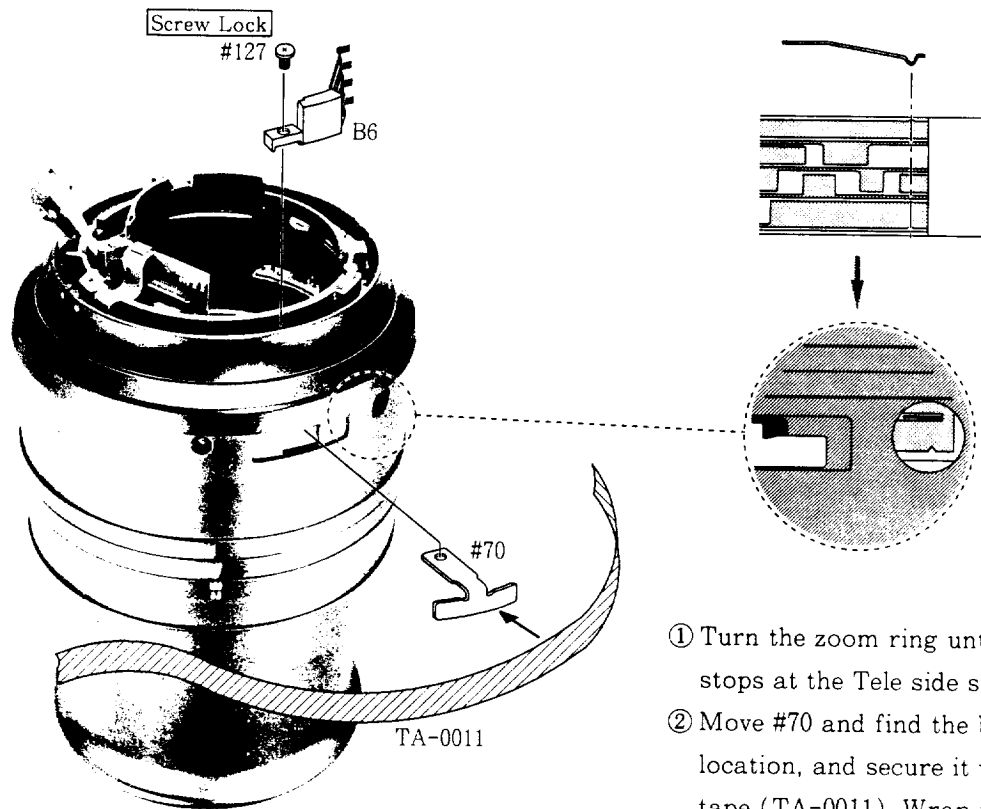


## ZOOM SCALE RING #59



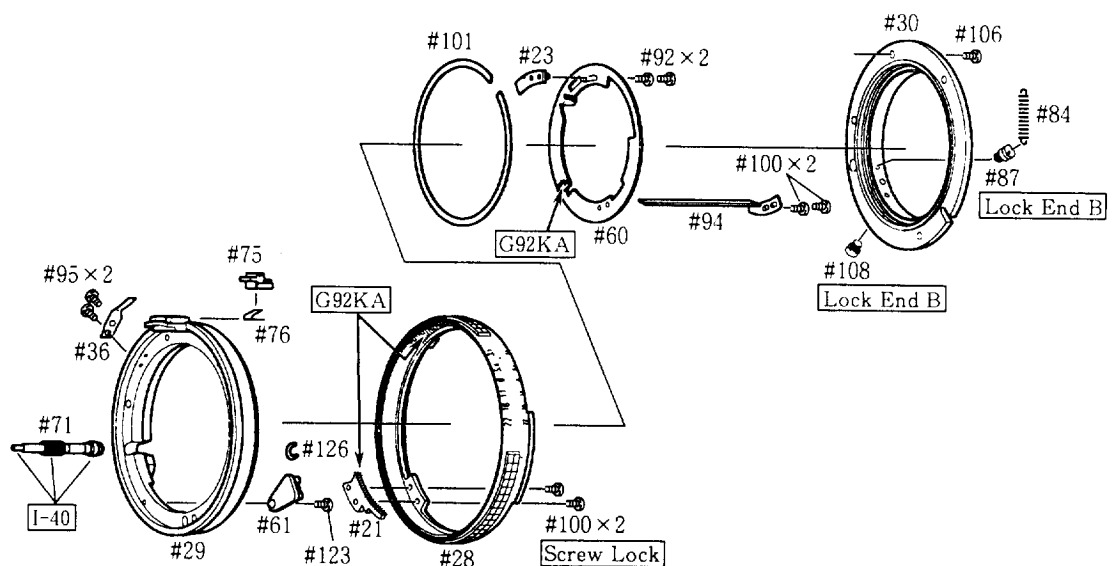
- Apply GE-8 oil to two locations in the linear advance groove inside zoom scale ring #59.

## ADJUSTMENT OF ZOOM ENCODER BRUSH POSITION

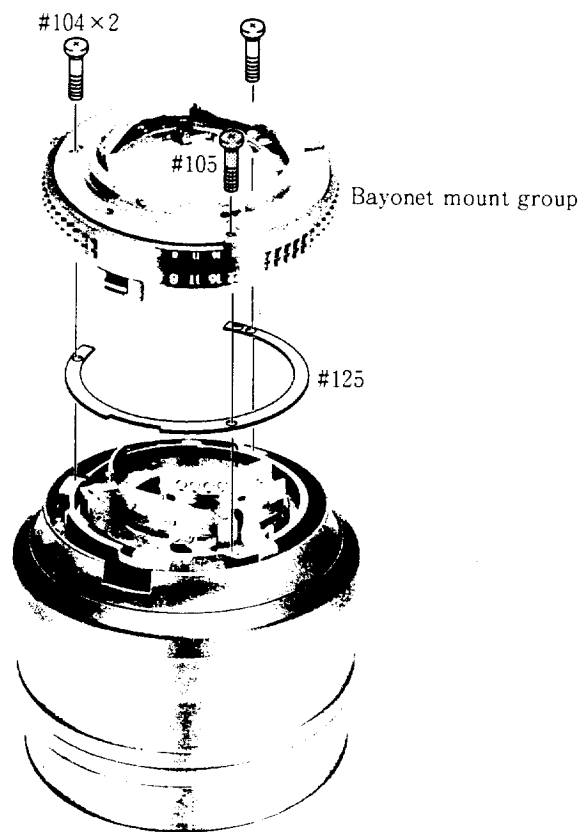


- ① Turn the zoom ring until it stops at the Tele side stopper.
- ② Move #70 and find the brush location, and secure it with tape (TA-0011). Wrap the tape once around.

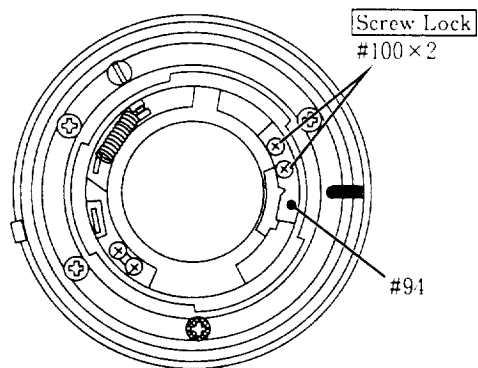
## APERTURE RING, BAYONET MOUNT GROUP



## ASSEMBLING BAYONET MOUNT GROUP



## ADJUSTMENT OF APERTURE OPENING



- ① Unfasten screws #100×2 and move part #94 to adjust the aperture diameter.

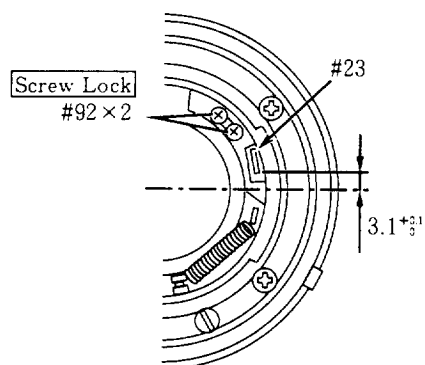
As a guide to adjustment, the full aperture (f/3.5) should be the same size as the inside aperture of part #33.

- Aperture diameter should be within the allowable range when the diaphragm ring is rotated forward and backward.
- Aperture lever should be within the allowable range when the aperture lever is snapped by your finger.

- ② After adjustment, secure screws #100×2 using Screw Lock.

Aperture setting	Inscribed circle diameter (mm)	Tolerance (mm)
3.5	16.25	17.54 ~ 15.66
4	14.28	15.43 ~ 13.22
5.6	9.93	11.15 ~ 8.85
8	6.98	7.84 ~ 6.22
11	4.93	5.75 ~ 4.22
16	3.48	4.06 ~ 2.98
22	2.46	2.87 ~ 2.10

### ADJUSTMENT OF APERTURE LEVER POSITION

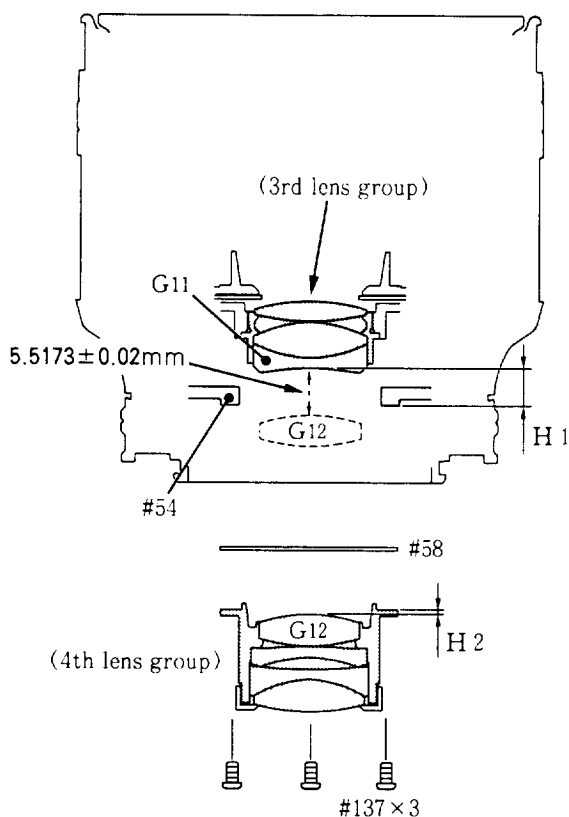


Unfasten screws #92×2 to adjust the position of the aperture lever #23 so that it comes into the rated value of  $3.1^{+0.1}_{-0.1}$  to bring the aperture diameter within rated value at full aperture.

After adjustment, fix screws #92×2 using Screw Lock.

**Reference :** When adjusting the rated value of  $3.1^{+0.1}_{-0.1}$ , set the aperture ring to f/3.5 and mount the tool J18004-1 on the bayonet mount. If becomes much easier to adjust if you mount the aperture lever #23 based on the groove of the tool as a reference.

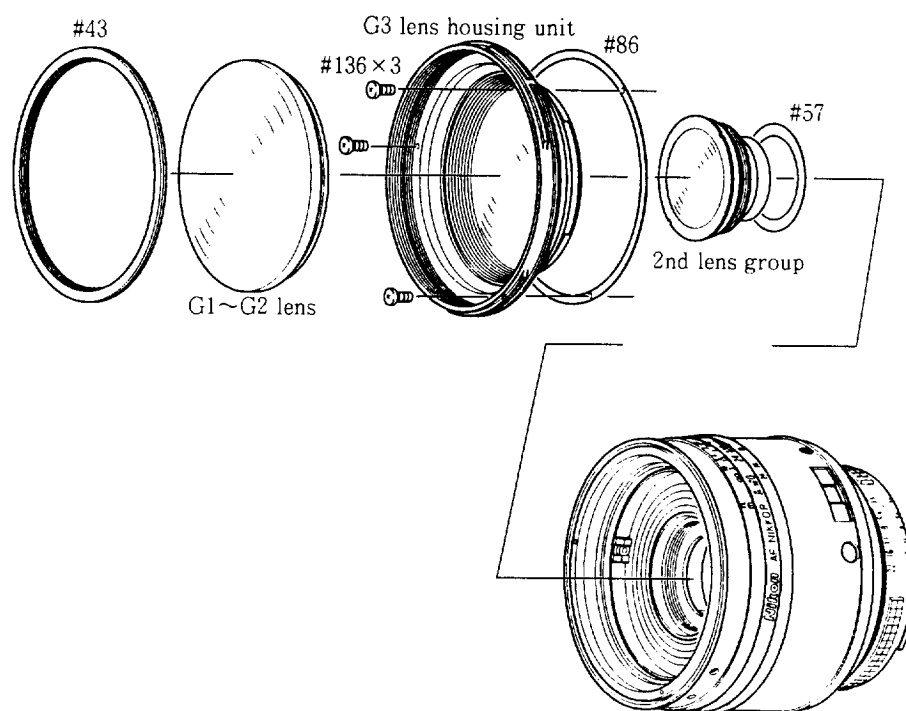
### ADJUSTMENT OF DISTANCE AMONG G11 AND G12 LENS



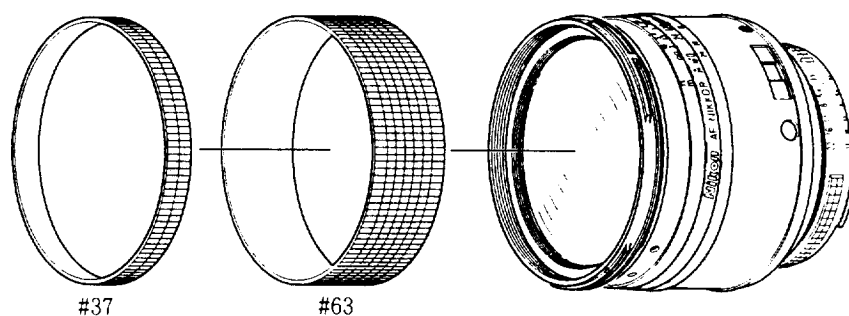
- ① Mount the 3rd lens group and attach zoom ring to the wide stopper.
- ② Set the lens on the measuring stand with the bayonet mount facing up.
- ③ Measure the length (H1) from G11 lens to the 4th lens group mounting surface of #54 using the digital micrometer.
- ④ Measure the length (H2) from G12 lens to the mounting surface of the 4th lens group using the digital micrometer.
- ⑤ Calculate the following equation. (Unit: mm)  

$$5.5173 - (H1 - H2) = \text{Thickness of washer \#58}$$
- ⑥ Decrease the thickness of washer #58 so that the value becomes equal to the value listed above.
- ⑦ Mount the washer #58 and the 4th lens group.

G1~G3 LENS GROUP, 2nd LENS GROUP



RUBBER RING #37, #63



### ADJUSTMENT OF SHIFT FOCUS (TELE AND WIDE)

1. Align the  $\infty$  mark on focus ring to index. Set aperture to full aperture.
2. Read the value on both Wide and Tele sides respectively.
3. Calculate the following equation.

$$(A - B) \div 2.0 = C$$

A = Value of Tele side (mm)

B = Value of Wide side (mm)

C = Amount (mm) of adjustment of 1st lens  
group washer #86

4. Adjust the thickness of washer #86 by the value C calculated from the above equation.  
If the value C is positive, thicken the washer by the value, and if negative, thin the washer.

**Note :** Insert thin washer between thick washers when mounting washer #86.

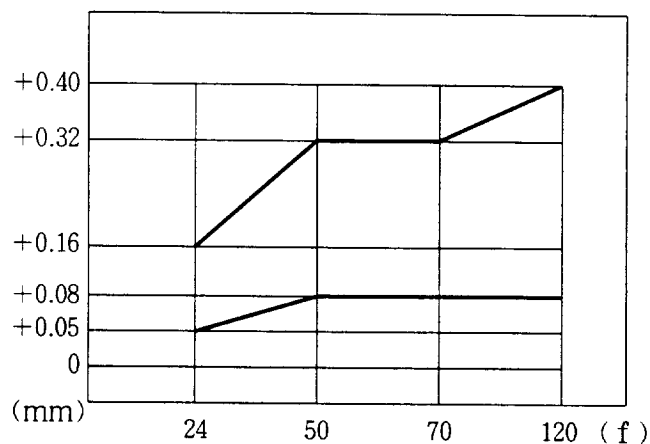
(Refer to page L15.)

### ADJUSTMENT OF BACK FOCUS

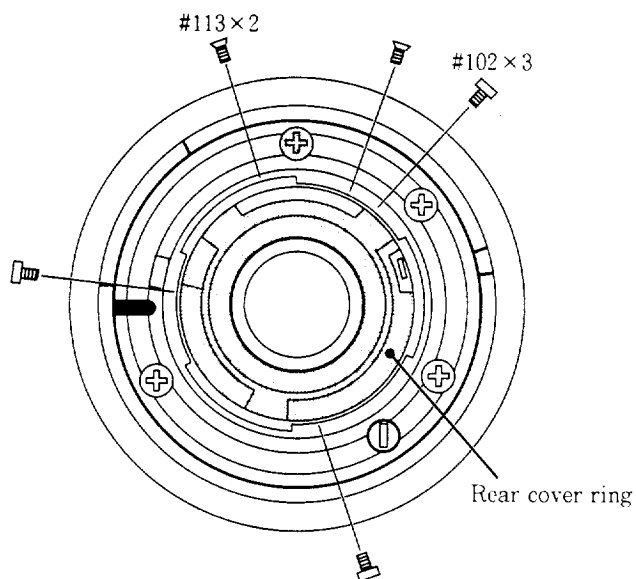
1. Align the  $\infty$  mark on focus ring to index. Set aperture to full aperture.
2. Readout values at either Wide or Tele side.
3. Remove the aperture ring.
4. If the value is above the standard, increase the thickness of the washer, otherwise decrease it.
5. Confirm that the value is within the standard range.

(Refer to page L13.)

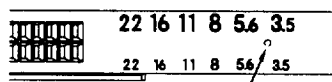
Focal length ( f )	Standard (mm)
24mm	+0.05 ~ +0.16
50mm	+0.08 ~ +0.32
70mm	+0.08 ~ +0.32
120mm	+0.08 ~ +0.40



# REAR COVER RING



## ATTACHING METER COUPLING SHOE



Make hole on this  
concave portion

- (1) Take out aperture ring #28.
- (2) Make a hole ( $\phi 1.1$ ) at the concave portion of aperture ring.

Mount meter coupling shoe on the aperture ring and make another hole ( $\phi 1.1$ ) based on the hole of meter coupling shoe.

Meter coupling shoe	1K406 - 011	× 1
Screw	1K010 - 002 - 1	× 2

- (3) Mount meter coupling shoe.
- (4) Assembling.

## INSPECTION OF ENCODER SIGNAL

※ Use an F70 (N70) camera body and AF nikkor lens inspection program for F70/N70 to display encoder signal on the computer monitor when making an inspection.

**Inspection method**

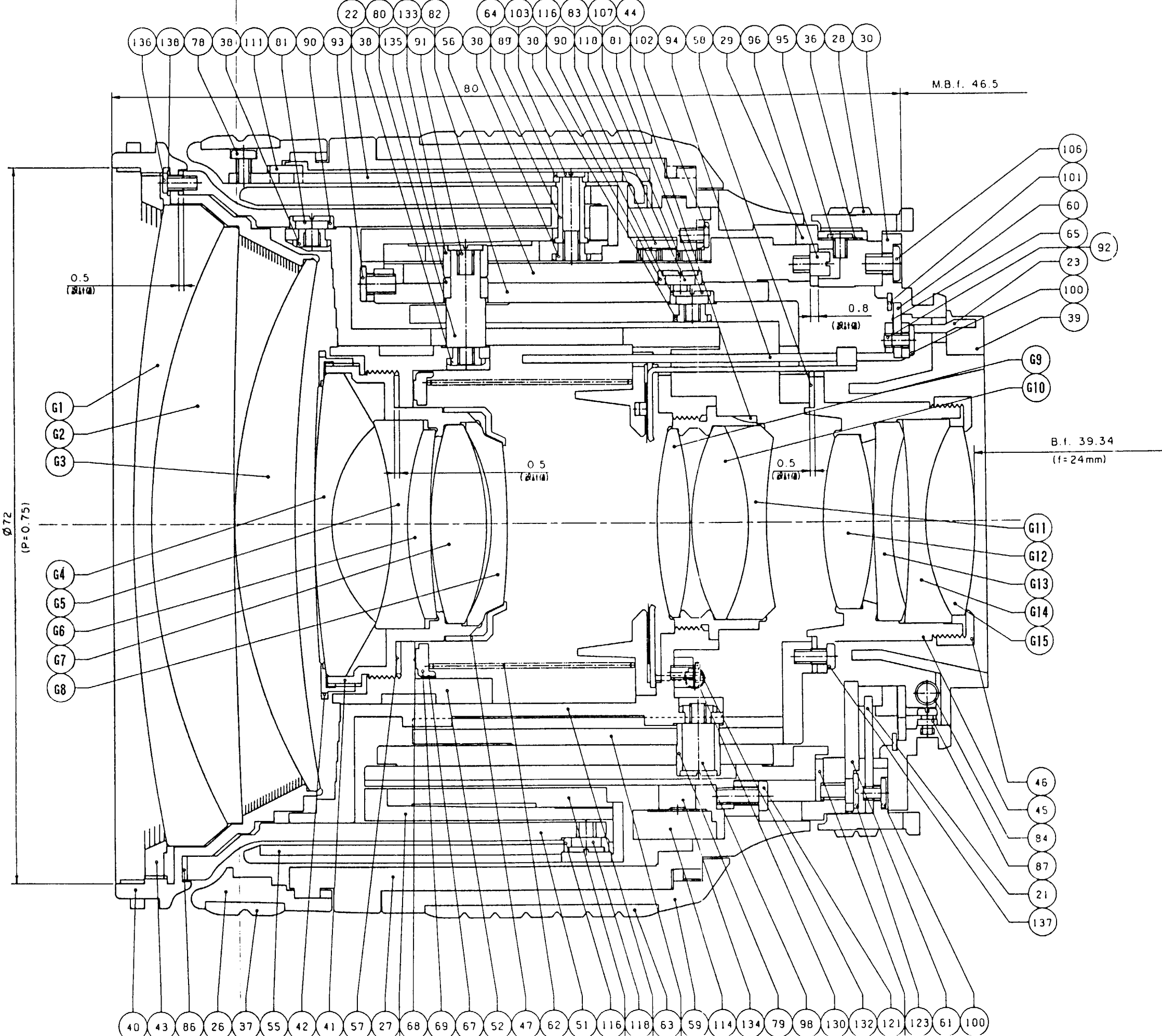
- Start the AF nikkor lens inspection program for F70/N70 and select " 1. READING OF LENS ENCODER SIGNAL ". Make inspection according to instructions as shown on the display.
- Encoder signals should be as described in the table below when the zoom and distance scale are set to specified positions.

Zoom ring  Distance scale position	f = 2 4 mm			f = 5 0 mm			f = 7 0 mm			f = 1 2 0 mm		
	Encoder signal											
	1	2	3	1	2	3	1	2	3	1	2	3
Most infinity position	3 9 h	1 2 h	D 3 h	3 9 h	9 6 h	D 3 h	3 9 h	B 0 h	D 3 h	3 9 h	1 1 h	D 3 h
1 m	5 7 h	1 2 h	D 3 h									
Most close distance position	8 6 h	1 2 h	D 3 h									

◎ If encoder signal values are different from those shown in the table, following causes must be considered.

Distance brush is mounted in the wrong position, distance brush or FPC is defective, encoder patterns on the FPC are contaminated, or the FPC is fixed in the wrong position.





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